Barhale

# Thames Valley Reservoir Refurbishment

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| **Client:** | Thames Water |
| **Location:** | Various locations |
| **Value:** | £2.2m |
| **Duration:** | 22 Months |


*Temporary tanks supported the out of service reservoirs*

*Each reservoir was independently assessed for access and emergency evacuation*

## In Brief...

The Thames Valley reservoir refurbishment programme consisted of 5 No. pre-load reservoirs at various rural locations. The reservoirs were constructed during the 1950s. Pre-stressed concrete tanks were constructed as they provided a quick and cost effective means of constructing a water tight vessel (in this case potable water). Due to the collapse of a similar reservoir in Lanner Hill, Cornwell in 1999 and Thames Water's requirement to maintain a 10 yearly inspection programme, Barhale was commissioned to inspect and report on the condition of the reservoirs. Barhale engaged the assistance of a specialised structural engineer. From the inspections and reports, recommendations were provided for the repair / refurbishment. This was then undertaken by the project team.

## Technical Features...

The reservoirs are located in isolated areas and are classed as island supplies within the network. It was therefore necessary to construct temporary tanks alongside the existing reservoirs with a capacity of 1 million litres to enable the reservoirs to be taken out of service, whilst maintaining uninterrupted supply to the network. The temporary tanks had to mimic each individual existing reservoir from control levels through to fully integrated statuary sampling systems. The stakeholder team worked closely with land agents to obtain agreements from landowners and Thames Water Operational Staff to enable construction of the tanks alongside the existing reservoirs.

## Customer Benefits...

Each individual project was subjected to a tight programme due to the uncertainty of removing the existing reservoirs from service. The same management team managed all the works and successfully delivered the programme exceeding safety, cost and time targets. The knowledge and experience gained from each reservoir enabled the risks to be managed at a programme level.

Access to each reservoir was restricted due to a single hatch point entry, which is located on the lower section of the domed roof. The domed roof is a hazardous area due to the shallow thickness of the concrete structure. To enable a full confined space entry for an inspection and specialised repair team each reservoir was individually assessed regarding access and emergency evacuation. Large independent cantilevered scaffolding access platforms and towers were installed prior to the works to mitigate the entry risk that each reservoir posed.

## Sustainability...

Sustainability was a key consideration throughout the programme, following initial construction, each temporary storage tank was dismantled and reused at each subsequent reservoir site.
The temporary tanks are in storage and will be reused on similar projects in the future.

In other areas the temporary pipework was incorporated into permanent solution through and the compound stone was reused for track ways within the adjoining farmland.